# Topics Covered

- 2015 ozone NAAQS review schedule
- 2015 ozone NAAQS implementation schedule
- Background ozone in the western U.S.
- Exceptional events rule and guidance
- International transport / HTAP (Keating)
- On-going research in the western U.S. (Tonnesen)

- Discussion with OAQPS w.r.t. ozone transport issues



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# Update on $O_3$ NAAQS Review

- EPA completed drafts of Health and Welfare Risk and Exposure Assessments (REAs) and Policy Assessment (PA)
  - EPA released 2nd drafts of the REAs and PA in January, 2014
- Clean Air Scientific Advisory Committee (CASAC) review of draft REAs and PA completed
  - Meeting in March, 2014
  - Follow-up teleconferences in May and June, 2014
  - Reports available on EPA Science Advisory Board website
  - Final REAs and PA will be released summer 2014
- EPA on schedule to meet court-ordered deadline of proposal signature on December 1, 2014

# Target Schedule for 2015 Ozone NAAQS Implementation Rules/Guidance/Tools

*Rev 6-16-2014*

| Action | After NAAQS Promulgation | Target Delivery Schedule |
|---|---|---|
| **EPA proposes Monitoring, Exceptional Event Demonstration Schedule, and PSD guidance or rule*** | Pre-promulgation | December 2014 |
| **EPA finalizes Monitoring, Exceptional Event Demonstration Schedule, and PSD guidance or rule*** | Upon promulgation | October 2015 |
| **EPA issues Designations guidance** | 4 months | January 2016 |
| *States submit Designation recommendations* | *1 year* | *October 2016* |
| **As needed, EPA issues Transport Rule and/or revised i-SIP guidance** | Up to 1 year | Up to October 2016 |
| **EPA proposes Nonattainment Area SIP rules/guidance (including conformity, emission inventory, modeling, and nonattainment NSR provisions)** | 1 year | October 2016 |
| **EPA finalizes Designations, Classifications, and Attainment Dates** | 2 years | October 2017 |
| **EPA finalizes Nonattainment Area SIP rules/guidance** | 2 years | October 2017 |
| **EPA and/or air agencies issue final SIP templates, toolkits, etc. to assist states with development of nonattainment area plans** | 2 years | October 2017 |
| *States submit Infrastructure and Transport SIPs* | *3 years* | *October 2018* |
| *States submit Attainment plans* | *5-6 years* | *December 2020-2021* |
| *Nonattainment Area Attainment Dates (Marginal – Extreme)* | *5-22 years* | *December 2020-2037* |



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# Implementation Rule for the Next Ozone NAAQS

- The EPA intends to reach out to states early in the development process of the next ozone implementation rule to provide states opportunities to raise critical issues, such as background ozone.

- The EPA will ensure States are aware of these opportunities when we finalize plans.



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# Background $O_3$ in the western U.S.

- Background $O_3$ typically refers to ozone that is formed by processes that cannot be impacted by local controls.
  - Can originate from natural sources of $O_3$ (e.g. stratosphere) and $O_3$ precursors (e.g., wildfires), as well as from upwind manmade emissions of $O_3$ precursors (e.g. Asian emissions).

- Recent EPA $O_3$ NAAQS review assessments (ISA and PA) provide characterization of background $O_3$ levels over U.S.
  - Relative to the rest of the U.S., background $O_3$ contributes more significantly to ozone levels in the western U.S. (especially at high elevation sites in the late Spring / early Summer).
  - Modeling studies have provided evidence that some high ozone days in this region can be highly influenced by "U.S. background" (i.e., sources other than manmade U.S. emissions of $O_3$ precursors)



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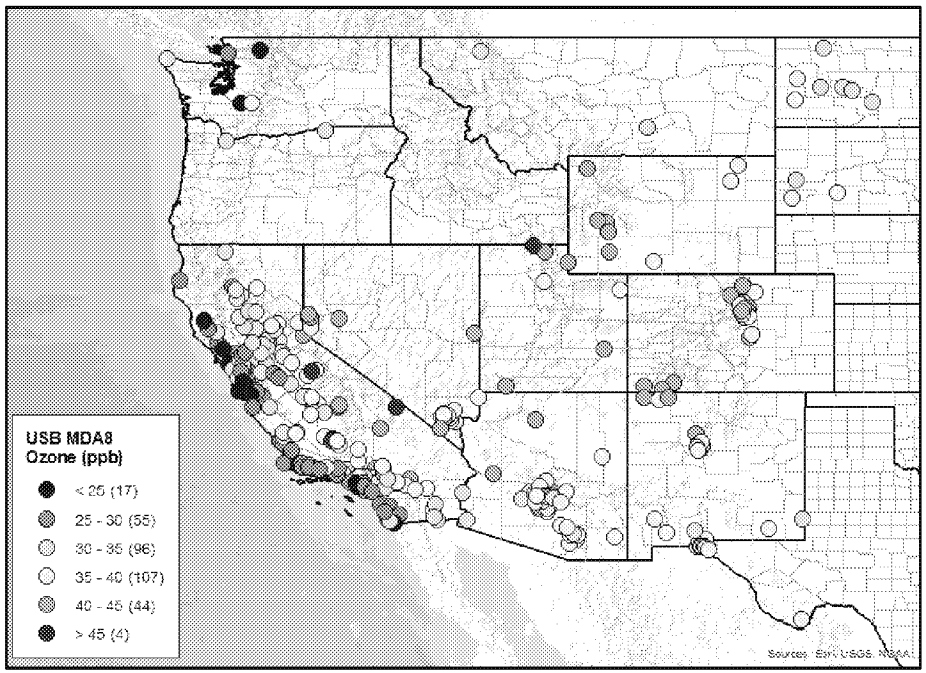
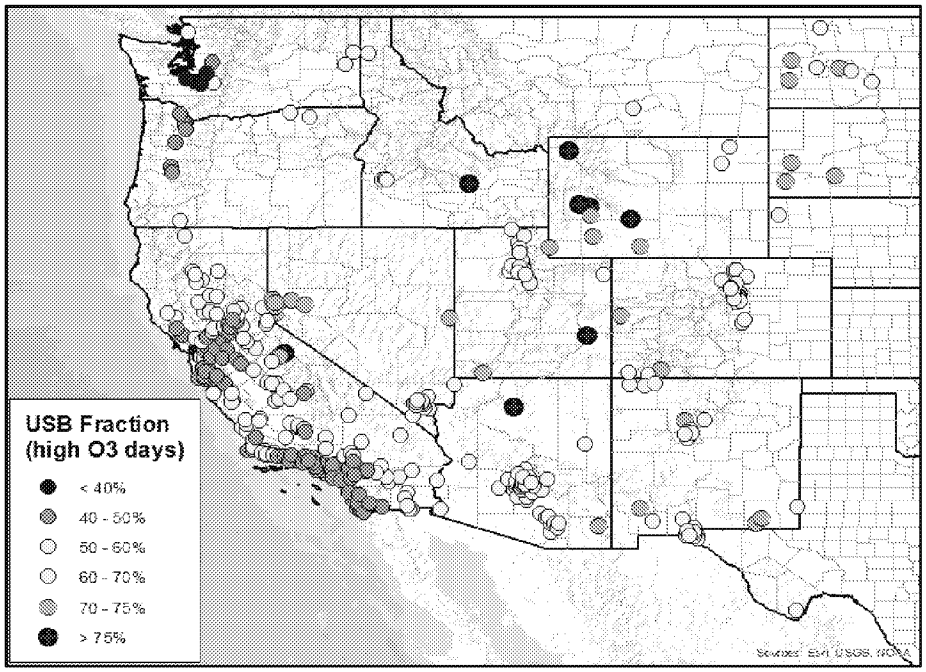
# Background $O_3$ in the western U.S.

Model-estimated seasonal mean USB $O_3$



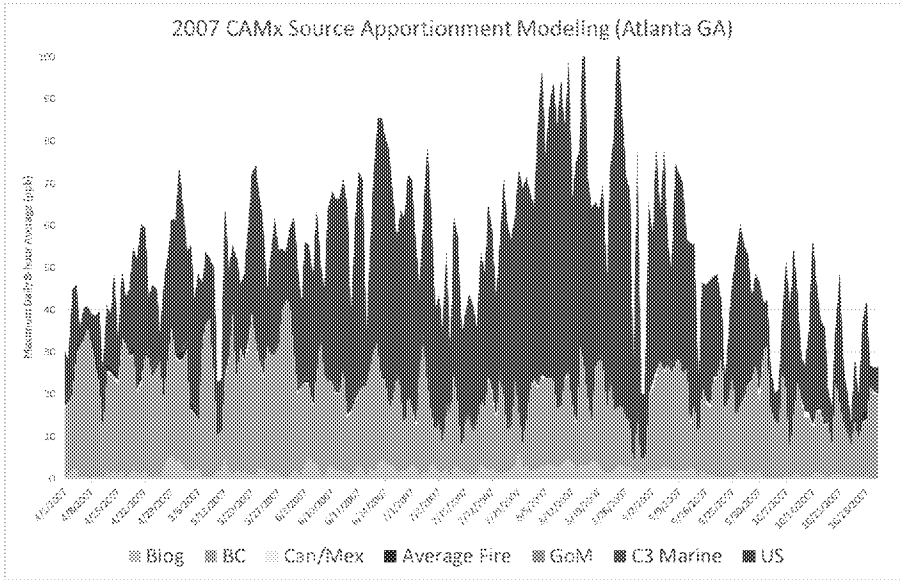

Model-estimated fractional USB $O_3$ (days > 60 ppb)



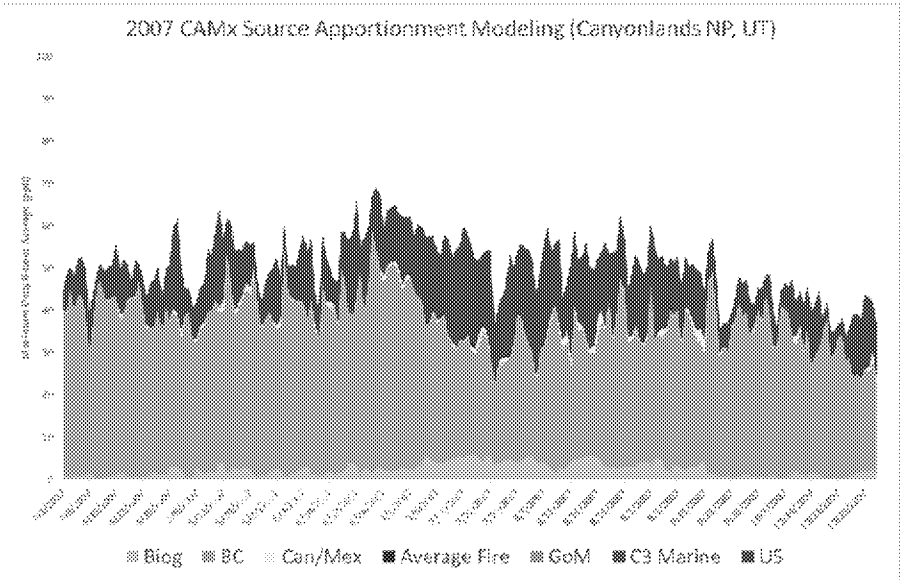

- Ozone monitoring data show that some remote areas in the southern Rocky Mountains may currently exceed the current NAAQS of 75 ppb.
- Model estimates of background $O_3$ can vary by model, but general agreement that seasonal mean background levels can > 40 ppb in R8 states and comprise 60-90 percent of the $O_3$ on high days.

# Background $O_3$ in the western U.S.

Ozone source apportionment (Atlanta)




Ozone source apportionment (Canyonlands)




- Models can estimate the proportion of ozone that originate from various sources.
- Certainly, rural sites in the western U.S. will have a greater contribution from sources beyond their control (stratosphere, fires, Asian plumes). The modeling suggests some interstate ozone transport will also affect rural monitors in the western U.S.

# Exceptional Events Rule and Guidance

- Anticipate proposing EER revisions in mid-2015 and promulgating in mid-2016
  - May provide additional clarity and/or relief for event documentation related to the 2014-2016 data that will be used in final ozone designations (to be completed by October 2017)

- Additional guidance to support data exclusion requests for wildfire-related events that may affect ozone concentrations planned on similar schedule
  - We may also consider issuing earlier interim guidance to more clearly address state data collection and documentation efforts that may be starting in 2014



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# O3 monitoring and modeling in R8 states

- 3-state air quality study and data warehouse:
  - Rural O3 monitoring in UT, CO and WY
  - Modeling on 12-km grid for western US and 4-km grid for UT, CO and WY. Modeling 2008, 2011, 2014.
- DISCOVER-AQ and FRAPPE field studies:
  - $10 million monitoring study, modeling global to local scale.
- Oil and gas emissions studies:
  - NOAA, RPSEA, CDPHE/CSU, WY DEQ, UT DEQ/USU, WRAP/WEA, EDF, CU, EPA, BLM, AQAST.
- WRAP 5-year work plan proposes new modeling efforts.
- EPA and state collaborative modeling efforts.



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# Modeling international transport of O3

- Global scale models are used to assess US background, evaluate stratospheric intrusions and provide boundary conditions for high resolution regional scale modeling:
  - MOZART, GEOS-Chem, AM3, RAQMS are widely used global models.
  - EPA is developing a northern hemisphere CMAQ model.
- These models and others are participating in HTAP, an international effort to improve our understanding of regional versus extra-regional sources of air pollution.



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# Task Force on Hemispheric Transport of Air Pollution (HTAP)

- TF HTAP is an international expert group, co-chaired by EPA and the European Commission, working to improve our understanding of the intercontinental flow of air pollution across the Northern Hemisphere. Experts from across North America, Europe, and Asia are participating.
- TF HTAP is currently conducting a set of global and regional modeling experiments for 2008-2010 and examining global scenarios out to 2050 to understand:
  - How do current global and regional models compare to different types of observations (surface, satellite, aircraft)?

    A detailed comparison to 2010 CalNex observations in the Western U.S. is being organized.
  - How do the relative contributions of regional vs. extra-regional sources differ across the world?
  - How are the relative contributions of regional and extra-regional sources likely to change in the future.
- Initial results from the current experiments are expected in early 2015 with more analysis to follow into 2016.
- The inputs and outputs being developed are all publicly available and additional contributors are welcome. You can access the work plan and subscribe to an email list at www.htap.org, or contact keating.terry@epa.gov.



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# Links to EPA Science Advisory Board documents

REAs:
http://yosemite.epa.gov/sab/sabproduct.nsf/264cb1227d55e02c8525740200744 6a4/cd07f81a4105139d85257ab60056d531!OpenDocument&TableRow=2.3#2

PA:
http://yosemite.epa.gov/sab/sabproduct.nsf/264cb1227d55e02c8525740200744 6a4/e0868bdb424ddb3985257ab6005b59e5!OpenDocument&TableRow=2.3#2

# Schedule for States to Document Exceptional Events

- We intend to propose rule revisions that would accelerate state submissions of exceptional event documentation to enable EPA to fully consider event-affected data in designations.

- The data flagging and demonstration submittal deadlines in the Exceptional Events Rule (EER) are appropriate in routine circumstances, but may not be timely when event-affected data are to be considered by EPA for near-term regulatory decisions, such as area designations for revised standards.

- This type of revision to the EER schedule has been routine for all NAAQS revisions since 2008. We intend to propose the same approach for the 2015 NAAQS revision.



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# Appendix/ Example Exceptional Events Documentation Schedule

- Example Dates for a potential 2015 Ozone NAAQS (under a 2-year designations schedule)
  - By December 1, 2014 – EPA proposes 2015 Ozone NAAQS
  - ***Mid-2015 - EPA proposes Exceptional Event Rule revisions/guidance***
  - By October 1, 2015 – EPA promulgates 2015 Ozone NAAQS
  - ***Mid-2016 - EPA promulgates Exceptional Event Rule revisions/guidance***
  - October 2016 - States/tribes submit area and boundary recommendations based on 2013-2015 data
  - June 2017 - EPA notifies states/tribes re: any intended modifications to their recommendations (120-day letters) based on 2014-2016 data
  - October 2017 - EPA promulgates final ozone area designations
  - Potential exceptional event schedule

| Air Quality Data Collected for Calendar Year | Event Flagging & Initial Description Deadline | Detailed Documentation Submission Deadline |
|---|---|---|
| 2013 and 2014 | May 2016 | October 2016 |
| 2015 | May 2016 | October 2016 |
| 2016 | May 2017 | June 2017 |



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